



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/099,815

03/13/2002

Hong Kui Yang

01-791 71767

2753

24319

7590

05/17/2006

LSI LOGIC CORPORATION

1621 BARBER LANE

MS: D-106

MILPITAS, CA 95035

EXAMINER

RYMAN, DANIEL J

ART UNIT

PAPER NUMBER

2616

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/099,815

Applicant(s)

YANG ET AL.

Examiner

Daniel J. Ryman

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 3/13/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/13/2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 6 is objected to because of the following informalities: in line 13, "each the" should be "each of the". Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Willenegger et al. (USPN 6,775,254).
4. Regarding claims 1 and 6, Applicant admits as prior art a forward data packet channel and a method of time division multiplexing for a forward data packet channel, the method comprising the steps of and the channel comprising means for: encoding data sub-packets into streams of turbo codes (see ref. 104 in Fig. 1 and page 4, line 15-page page 6, line 6); interleaving each of the streams of turbo codes to generate streams of quasi-complementary turbo codes (see ref. 106 in Fig. 1 and page 4, line 15-page page 6, line 6); and modulating the streams of quasi complementary turbo codes to generate streams of modulated data symbols (see ref. 108 in Fig. 1 and page 4, line 15-page page 6, line 6).

Applicant does not admit as prior art that the encoding, interleaving, and modulation occur on parallel streams or multiplexing the parallel streams of modulated data symbols by one of multiplexing and non-complete puncturing to generate a single stream of modulation symbols.

Art Unit: 2616

Willenegger teaches, in a wireless communication system, processing two data streams in parallel and then multiplexing the parallel streams (Fig. 4 and col. 2, lines 44-62) in order to efficiently utilize available resources (col. 2, lines 33-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to encode, interleave, and modulate parallel streams and multiplex the parallel streams of modulated data symbols by one of multiplexing and non-complete puncturing to generate a single stream of modulation symbols in order to efficiently utilize available resources.

5. Regarding claims 2 and 7, Applicant's admitted prior art in view of Willenegger discloses demultiplexing the single stream of modulation symbols into multiple in-phase and quadrature data streams (AAPA: see ref. 110 in Fig. 1 and page 4, line 15-page page 6, line 6).

6. Regarding claims 3 and 8, Applicant's admitted prior art in view of Willenegger discloses covering each of the multiple in-phase and quadrature data streams with a distinct Walsh code to generate parallel streams of Walsh-covered symbols (AAPA: see ref. 112 in Fig. 1 and page 4, line 15-page page 6, line 6).

7. Regarding claims 4 and 9, Applicant's admitted prior art in view of Willenegger discloses summing the parallel streams of Walsh-covered symbols to generate a single in-phase and quadrature sample stream pair (AAPA: see ref. 114 in Fig. 1 and page 4, line 15-page page 6, line 6).

8. Regarding claims 5 and 10, Applicant's admitted prior art in view of Willenegger discloses that the modulation is one of quadrature phase shift keying, 8-phase shift keying, and 16-quadrature amplitude modulation (AAPA: page 5, lines 18-22).

Art Unit: 2616

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tong et al. (US 2002/0150040) see paragraphs 1, 8-10, 24, 29, and 34-37 which discloses combining two data streams through puncturing (presumably non-complete puncturing as evidenced by paragraph 1) in order to permit continuous transmission of one of the data streams, i.e. the data stream that has the sub-packets punctured into it. Yun et al. (US 2002/0176362) see entire document which pertains to multiplexing two turbo encoded streams into a single stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.(toll-free).

Daniel J. Ryman  
Examiner  
Art Unit 2616

*Daniel J. Ryman*